

**24004**

**B. Tech. 1st Semester F- Scheme  
Examination, December – 2016**

**BASIC OF ELECTRONICS**

**Paper–ECE-101-F**

*Time allowed : 3 hours ]*

*[Maximum marks : 100*

*Note : Question number 1 is compulsory, and attempt one question from each of the four sections. All questions carry equal marks.*

1. (a) What is an amplifier and why cascading is required in amplifier ? 3
- (b) Write down the difference between Avalanche and Zener breakdown. 4
- (c) What is slew rate and CMRR ? 3
- (d) What is Aquadag: ? Why it is used ? 3
- (e) Define race around condition. 4
- (f) Define DeMorgan's theorem. 3

**Section–A**

2. (a) Differentiate between Intrinsic and Extrinsic semiconductors. 6
- (b) What is PN junction ? How it is formed ? Also explain the V-I characteristics of junction diode. 7
- (c) State and explain drift and diffusion current. 7

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3. (a) What is the need of coupling in amplifier circuits?  
What are the various types of coupling arrangements? Plot the frequency response of RC coupled amplifier and explain why the gain falls at low frequency and high frequency range. 15
- (b) Find out the effect of negative feedback on input and output impedance. 5

### Section-B

4. (a) Explain the working of crystal oscillator. Give its advantages and disadvantages. 10
- (b) What are the ideal characteristics of OP-AMP? 10

5. (a) Explain with diagram, working of Wein Bridge oscillator. Give its advantages and disadvantages. 10
- (b) Write short notes on SMPS. 10

### Section-C

6. (a) Differentiate between combinational and sequential circuits. 5
- (b) Convert  $(634)_8$  to hexadecimal. 5

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- (c) Convert  $(634)_{16}$  to binary. 5
- (d) Implement EX-OR gate using NAND gates only. 5
7. (a) Write a short note on signal generator. 10
- (b) What is CRO? Explain with block diagram. 10

### Section-D

8. Write short note on :  
(a) Seven Segment display 10  
(b) Electronic displays. 10
9. (a) What is LED? Discuss its construction and working. Give its advantages and disadvantages. 10
- (b) What is LCD? Explain different types of LCD with diagram. Give its advantages and disadvantages. 10

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